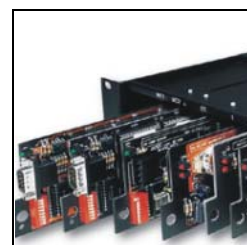




instruction manual

AXP-PLV

PosiTrack Pilot Video Camera Controller



Camera Control Systems



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Introduction

The AXP-PLV PosiTrack Pilot Video Panel Camera Controller (PosiPilot) is an integrated controller for use with cameras and camera positioning devices (such as the AXB-PT10/30 PosiTrack Camera Controllers). Refer to the *AXB-PT10/30 PosiTrack Camera Controllers* instruction manual for more information. The AXP-PLV connects to the camera-positioning device and Central Controller via an AXlink connection. This connection provides control of the pan/tilt, camera, and lens. The PosiPilot can be used in a stand-alone configuration with a Central Controller, compatible cameras, and positioning systems, or as part of a larger AMX control system.

The PosiPilot combines traditional dual-axis proportional-speed joystick camera controls with an integrated Color Active Mini-Touch Panel to give you graphic touch control and on-screen video monitoring (with video input for NTSC/PAL).

Specifications

Specifications	
Dimensions (HWD)	4.97" (including joysticks) x 17.67" x 8.39" (12.61 cm x 44.89 cm x 21.30 cm)
Weight	4.90 lb (2.20 kg)
Power	540 mA
Enclosure	Plastic with matte blue finish and plastic rests
Temperature Range	0° C (32° F) to 50° C (122° F)
Power Consumption	1 A @ 12 VDC
Buttons	12 pushbuttons, six on each side to select cameras and access camera menus
Video monitor	6-inch (152.40 mm) color active-matrix LCD screen
Video In	BNC female connector (NTSC/PAL)
Compatibility	NetLinx/Axcess Central Controllers
Connectors	4-pin mini-XLR (female) cable (pre-assembled) BNC (female) Video In connector (NTSC/PAL)

FIG. 1 and FIG. 2 show the dimensions for the front and side of the AXP-PLV.

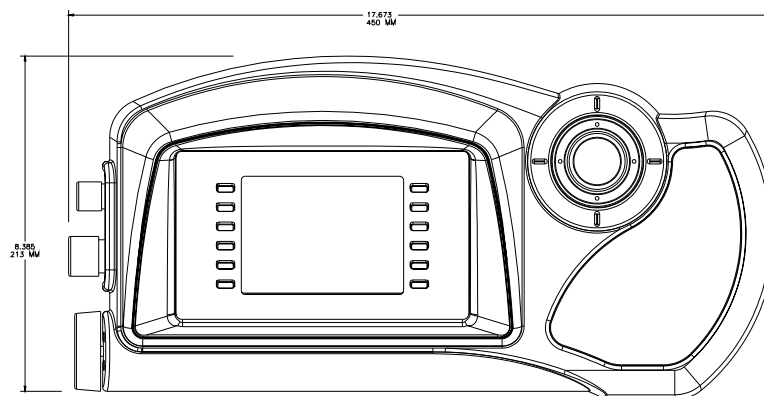


FIG. 1 AXP-PLV front panel dimensions

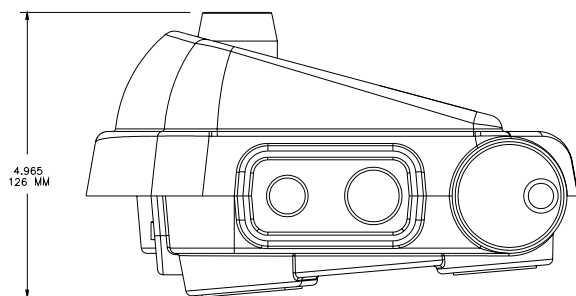


FIG. 2 AXP-PLV side panel dimensions

Product Components

The top of the PosiPilot is equipped with external pushbuttons, color video touch panel, and a 3-axis pan/tilt/zoom joystick. FIG. 3 gives a description of the AXP-PLV front panel components.



FIG. 3 AXP-PLV front panel component descriptions

FIG. 4 gives a description of the side and rear components.

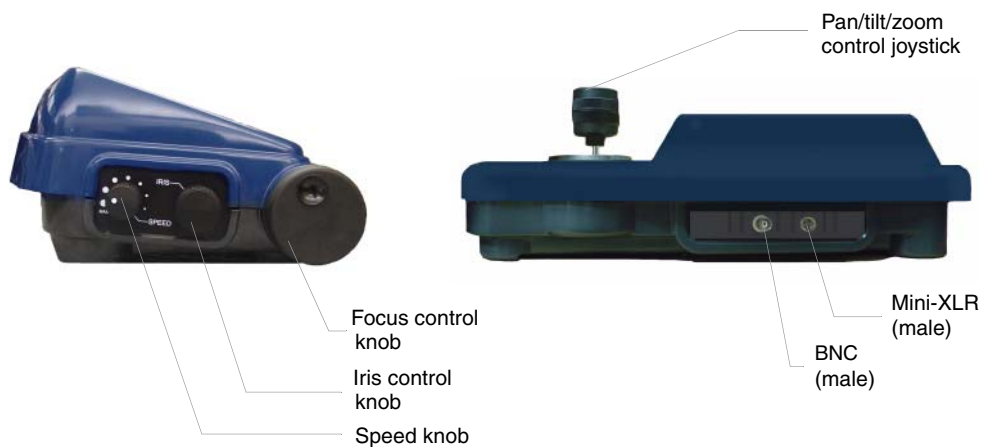


FIG. 4 AXP-PLV side and rear component descriptions

Sample Product Application

FIG. 5 shows a camera control application using the AXP-PLV. AMX devices used for a single camera configuration are:

Sample Devices Used	
AXB-EM232	Master Controller
AXB-PT10	Pan/Tilt Camera Head
AXP-PLV	PosiTrack Pilot Video Panel Camera Controller
PS2.8	Power Supply (for AXB-EM232)
PSN6.5	Power Supply (for AXB-PT10)

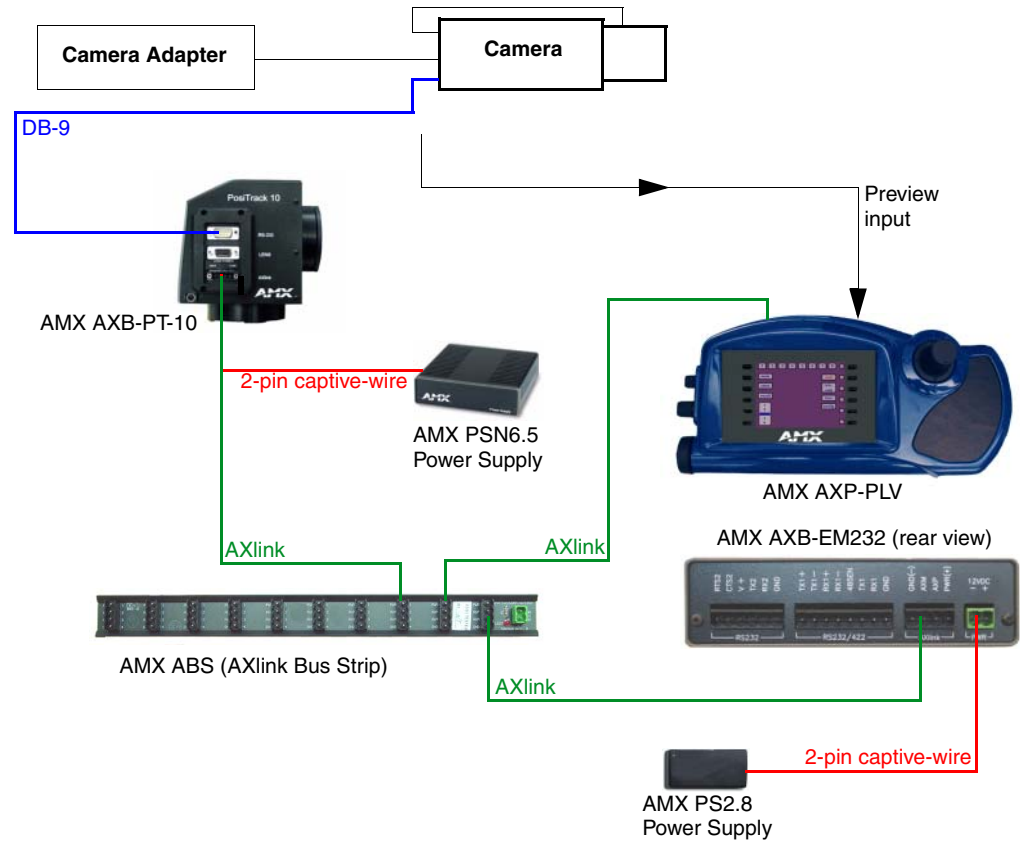


FIG. 5 AXP-PLV product application

Installation

Inside the AXP-PLV

The AXP-PLV unit contains two discrete AXlink devices: an AXP-AI8 (eight-channel analog input interface board) and a mini color video touch panel. The AXP-AI8 is connected to the joystick and knob functions of the AXP-PLV and is set to a factory default of 129.

Level assignments for the AXP-AI8 inside the AXP-PLV are:

AXP-AI8 Level Assignments	
Level 1	Pan (joystick)
Level 2	Tilt (joystick)
Level 3	Zoom (joystick)
Level 4	Speed (knob)
Level 5	Iris (knob)
Level 7	Focus (knob)

Refer to the *AXP-AI8 Eight-Channel Analog Input Interface Board* instruction manual for more information.

Setting the AXlink Device Numbers

To change the AXP-AI8 AXlink device number:

1. Gently rotate the panel (bringing the joystick to the left) over until you can lay it down and expose the slender opening on the underside of the unit. The slot exposes the AXlink DIP switch on the internal AI8 circuit card (FIG. 6).

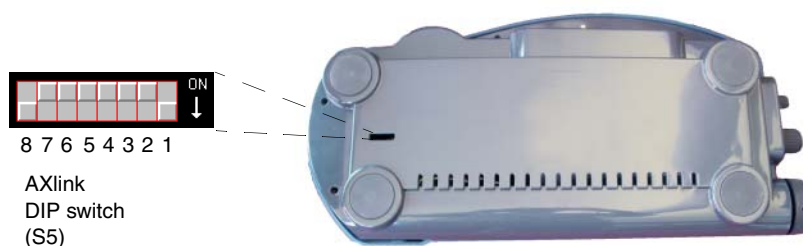


FIG. 6 AI8 AXlink DIP switch location (default set to 129)

2. Use a slender screwdriver to change the internal DIP switch positions from their default value of 129 (FIG. 6).

The DIP switch value set on the underside of the controller is the value assigned to the internal AI8 card (default 129). The touch panel is default set to 131. When the unit is connected to a Central Controller and queried for its addresses, it returns a value for both the touch panel (default 131) and the AI8 card (default 129).

3. Set the AXlink device number by changing the AXlink device DIP switch positions 1 – 8 (FIG. 6). The total value of all ON (up) positions on the DIP switch sets the device number. The DIP switch value range is between 1 - 255, and is set according to the Device DIP switch

positions and their corresponding values. The device number takes effect only after powering-up.

Device DIP Switch Settings								
Position	1	2	3	4	5	6	7	8
On value	1	2	4	8	16	32	64	128

- Once completed, rotate the unit and lay it on a flat surface. Refer to the *Setting the Device Base* section on page 12 for more information on changing the touch panel device number.

Wiring the AXP-PLV

The AXP-PLV has an AXlink four-wire mini-XLR connector (located on the rear of the AXP-PLV) and a BNC male connector (at the rear of the unit) A female mini-XLR cable (provided) is supplied to facilitate wiring.

Wiring guidelines

The AXP-PLV requires 12 VDC power to operate properly. The Central Controller supplies power via the AXlink cable or external auxiliary 12 VDC power supply. The maximum wiring distance between the Central Controller and AXP-PLV is determined by power consumption, supplied voltage, and the wire gauge used for the cable. The Wiring Guidelines table lists wire sizes and the maximum lengths allowable between the camera centers and control system. The maximum wiring lengths for using AXlink power are based on a minimum of 13.5 VDC available at the control system's power supply.

Wiring Guidelines	
Wire size	Maximum wiring length
18 AWG	217.35 feet (66.25 m)
20 AWG	137.51 feet (41.92 m)
22 AWG	85.73 feet (26.13 m)
24 AWG	54.042 feet (16.47 m)

If you install the AXP-PLV farther away from the control system than recommended in the above table, connect an external 12 VDC power supply to the camera controller according to the wiring diagrams described in this section.

Using the mini-XLR connector for AXlink data and power

Wire the Central Controller's AXlink connector to the mini-XLR connector (male) on the rear panel of the AXP-PLV for data and 12 VDC power, as shown in FIG. 7.

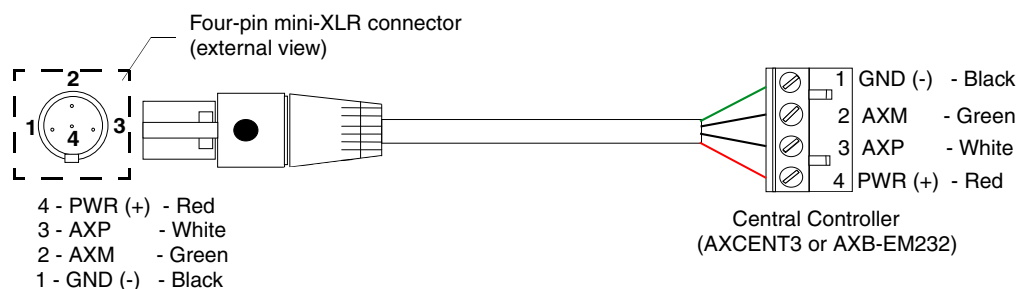


FIG. 7 Mini-XLR connector to control system wiring diagram

Using the mini-XLR connector with an external 12 VDC power supply

Wire the Central Controller's AXlink connector to the mini-XLR connector and external 12 VDC power supply. Then, connect the mini-XLR terminal connector to the rear panel of the AXP-PLV as shown in FIG. 8.

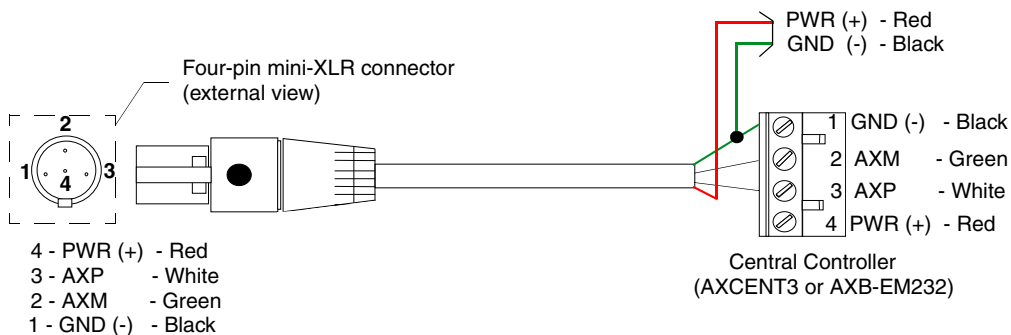


FIG. 8 Mini-XLR connector to external 12 VDC power supply wiring diagram

Using a BNC video cable to provide video input

Connect the control system's video connector to the rear of the AXP-PLV using a BNC cable to provide a video feed, as seen in FIG. 9.

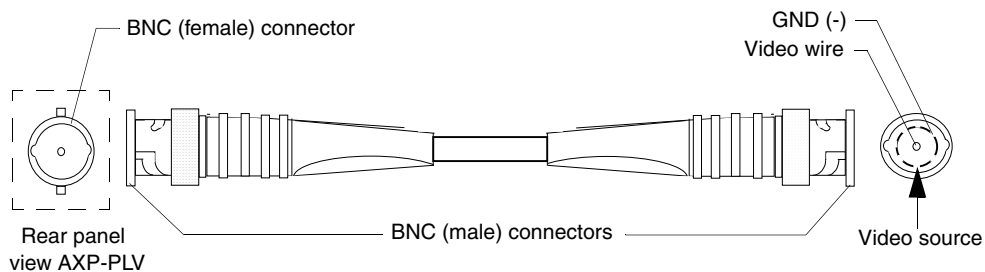


FIG. 9 BNC cable connection from the AXP-PLV to the video source

Designing Touch Panel Pages

There are two ways to approach creating touch panel pages:

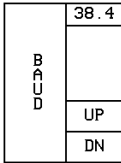
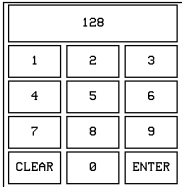
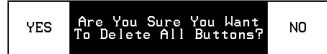
- TPDesign3 - Refer to the *TPDesign3 Touch Panel Program (Version 3. 16)* instruction manual for more information.
- On-board editor

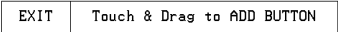
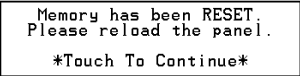
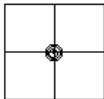
This section describes the basics of using the on-board editor to create pages and buttons. For more information, refer to the *G3 Firmware Design and Reference* instruction manual.

Buttons

Standard button types include rectangles and other geometric shapes you can create with the touch panel editor. Buttons are set with attributes, meaning there is a response from the Central Controller when you touch the button.

General buttons are part of the default touch panel program and cannot be changed. You use general buttons to create or revise pages and specify panel communication parameters. Button examples include selection buttons, information buttons, adjustment buttons, and operation bars. The general button categories are described in the table below.

General Button Categories	
Selection buttons 	Selection buttons appear on touch panel pages and set communication parameters.
Information buttons 	Information buttons contain serial numbers and firmware version information. The properties of these buttons cannot be changed. These buttons have a dark fill and light text.
Adjustment buttons 	You can use the UP and DN buttons to set adjustment buttons. The adjustment button example sets the baud rate for the connection from the touch panel to the computer.
Keypad buttons 	The keypad button opens a keypad so you can enter a password or value assignment. All keypad buttons are interactive except for the entry display.
Decision buttons 	Decision buttons appear when an operation has two options and requires verification before an action is performed.

General Button Categories (Cont.)	
Status buttons 	Status buttons always have a dark fill with light letters and have no functionality except to display information.
Operation bars 	Operation bars appear in the place of the Editor bar, after selecting a button or page edit operation. The operation bar indicates which edit function is currently active. When an edit operation is selected, it remains active until you press EXIT.
Touch to Continue buttons 	"Touch to Continue" buttons appear when an operation requires user acknowledgement.
Joystick buttons 	Joysticks are vertical and horizontal direction controllers for use with pan and tilt camera controllers.
Bargraph buttons 	Bargraph buttons display a dynamic bargraph (vertical or horizontal). An example is the Battery level indicator button.

Activating Edit Mode

Before designing touch panel pages and buttons, you must activate EDIT mode. Once activated, use the EDIT button to enter Edit mode. This mode has options to add and configure touch panels and buttons. When powering up the touch panel, the first page is the Main page (see FIG. 10). Note that the Edit button is not available initially.

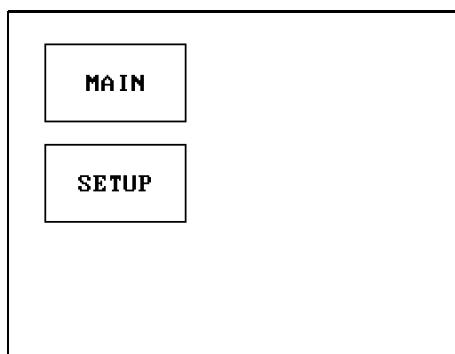


FIG. 10 Main Page



If you have a pre-programmed panel, you may not see the Main Page.

To activate edit mode:

1. Press SETUP in the Main page to open the Setup page (FIG. 11).

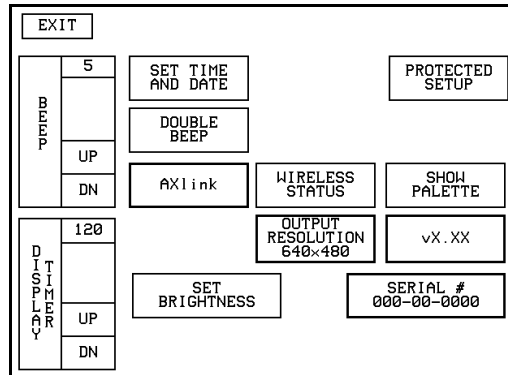


FIG. 11 Setup page

2. Press PROTECTED SETUP to open the keypad.
3. Enter 1988 (default password) in the keypad and press ENTER to open Protected Setup page. If you press ENTER after typing an incorrect password, you are immediately returned to the previous page.
4. Press EDITOR to enable Edit mode. The EDITOR button is highlighted in the Protected Setup page when enabled, as shown in FIG. 12.

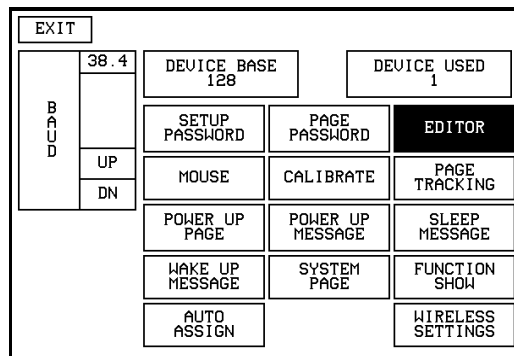


FIG. 12 Protected Setup page with the active EDITOR button

5. Press EXIT to close the Protected Setup page and return to the Setup page (now in the Edit mode).
6. Press EXIT again to return to the Main page. The EDIT button appears at the top of the page indicating that Edit mode is active.
7. Press EDIT to open the Edit bar. The BUTTON and PAGE options, in the Edit bar, (FIG. 13) are used to design and modify button and page settings.

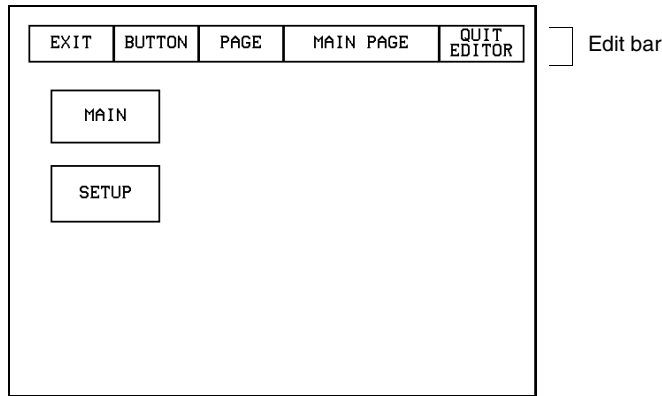


FIG. 13 Main page with Edit bar

Setting the Device Base

Press the DEVICE BASE option, in the Protected Setup page (FIG. 12), to assign a base (starting) device address to the touch panel.

1. Enter the base address for the touch panel. The base address range is from 1 - 255. Standard device addresses begin at 128.
2. Press Enter to save.

Setting the Device Used

Use the DEVICE USED option in the Protected Setup page (FIG. 12) to assign an initial value for the device address range used by the touch panel.

1. Press DEVICE USED to open the keypad and enter the panel's device number from 1 - 4. Each device number supports up to 255 programmable channel codes. The multiple device settings allow you to create up to four unique touch panel buttons and/or pages. This value is used to determine the current device being used by the panel.
2. Enter the number of devices being used by the touch panel.
3. Press Enter to save the value.



If DEVICE USED is set to 4 and Base Device Number is 128, the Controller recognizes bus devices 128 - 131.

The panel will not allow you to enter a device number greater than the DEVICE USED without first displaying a decision box asking if you accept the new selection or not.

Adding a Page

1. Press PAGE on the Edit bar to open the PAGE menu.
2. Press ADD to open the keyboard and enter a name for the new page. Page names can be up to 20 characters.
3. Press EXIT CHANGE to save, close the keyboard, and go to the new page.

Setting the page color

1. Press EDIT to open the Edit bar on the newly created page.
2. Press PAGE on the Edit bar to open the PAGE menu.

3. Press PAGE COLOR to open the color palette.
4. Select a color from the palette; the page automatically changes to the new color.

Adding a Button

To add a button to the current page:

1. Press BUTTON on the Edit bar to open the BUTTON menu.
2. Press ADD to open the ADD BUTTON operation bar. On the LCD screen, touch and drag to create a button. The first touch point is the upper-left corner of the button.

Resizing a button

1. Press BUTTON on the Edit bar to open the BUTTON menu.
2. Press RESIZE. Then, touch any edge of the button and drag. Removing your finger from the panel saves the button dimensions.

Defining On-Screen and External Button Properties

External pushbuttons are configured with features similar to on-screen buttons. Their functionality can be set just as any other button on the touch panel.

Use the PROPERTIES option of the BUTTON menu in the Edit bar to set button borders, page flips, button colors for channel on/off conditions, channel/variable text codes, and string/macro assignments.

External button properties include only the button type, page flips, channel codes, and string/macro assignments. Although the Border and Color sections of this page appear, they are of no use to external pushbuttons since they do not appear on-screen.

Use the following steps to set button properties:

1. Press BUTTON on the Edit bar to open the BUTTON menu options.
2. Press PROPERTIES to open the PROPERTIES operation bar.
3. Press the new button to open the Button Properties page. This page lists the properties for the active button.
4. Press BUTTON TYPE; this opens the BUTTON TYPE menu.
5. Choose a button type for the selected button to open the associated Button Properties page. Each button type has its own Button Properties page with settings specific to the button type.
6. Press BORDER to open the BUTTON BORDER pages.
7. Select a border to set for the button and return to the Button Properties page. The BORDER button changes to show the selected border type.

Setting the channel code

The channel button sets the device and button channel codes.



Channel codes and variable text codes work the same for all button types, including joysticks, and bargraphs.

1. In the Button Properties page, press DEV to open the keypad and set the touch panel's device number.
2. Enter 1, 2, 3, or 4 in the keypad. The programming software uses device codes 1 - 4 to identify the touch panel. Refer to the *G3 Firmware Design and Reference* instruction manual for more information.



If DEVICE USED is set to 4 and Base Device Number is 128, the Controller recognizes bus devices 128 - 131.

The panel will not allow you to enter a device number greater than the DEVICE USED without first displaying a decision box asking if you accept the new selection or not.

3. Press ENTER to save the device number, close the keypad, and return to the Button Properties page.
4. Press CHAN to open the keypad and enter a channel value of 1 - 255. The source code uses the channel code number to identify the button and its programmed operations. The channel code for non-active buttons is 0.
5. Press ENTER to save the channel number, close the keypad, and return to the Button Properties page.

Setting the variable text code

The variable text buttons set the device and button channel codes for the buttons.

1. Press DEV to open the keypad and set the device number.
2. Enter 1, 2, 3, or 4 in the keypad. The source code uses device codes 1 - 4 to identify the touch panel.
3. Press ENTER to save, close the keypad, and return to the Button Properties page.
4. Press CHAN to open a keypad and set the channel number.
5. Enter a channel value of 1 - 255 in the keypad. The source code uses the channel code number to identify the button and its operations.
6. Press ENTER to save the channel number, close the keypad, and return to the Button Properties page.

Setting the page flip

1. Press the PAGE FLIP Type button (FIG. 14) in the Button Properties page to open the Page Flip Type menu.
2. Select a Page Flip type. If you select FLIP PREVIOUS in the Page FLIP Type menu, the FLIP to Page button appears.
3. Press the FLIP to Page button (FIG. 14) to open a list of all the saved touch panel pages. If the desired page is not present in the menu, check to verify the page has been saved.

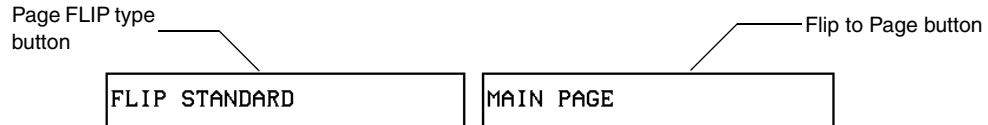


FIG. 14 Page FLIP Type button

4. Select the target page for the page flip.

Setting the button colors for channel-off conditions

1. Press any button to open the Button Properties page.
2. Press BORDER under CHANNEL OFF in the Button Properties page. The color palette appears. Select a color to set as the border.
3. Press the FILL button in the Button Properties page to open the palette. Select a color to set as the fill.
4. Press the TEXT button to open the palette. Select a color to use for the text.
5. Press EXIT SAVE CHANGE in the Button Properties page to save the new button properties and return to the current page.

Adding text, icons, and bitmaps to a button

1. Press BUTTON on the Edit bar to open the BUTTON menu.
2. Press TEXT/IMAGE to add text to the button. The TEXT/IMAGE operation bar appears.
3. Press any button to open the Text/Image page.
4. Go through each option and set as desired:
 - TEXT OFF and TEXT ON sets the text for the button's Off and On state.
 - ICON OFF and ICON ON sets the icon for the button's Off and On state.
 - BITMAP OFF and BITMAP ON sets the bitmap for the button's Off and On state.
 - MAKE ON SAME AS OFF sets the On and Off properties the same.



You cannot create or edit buttons with Unicode fonts on the panel. Any use of the TEXT/IMAGE button to alter or create Unicode font supported buttons must be done in the TPDesign3 Touch Panel Design Program.

5. Press EXIT SAVE CHANGE to close the Text/Image page and return to the Main page.

Using TPDesign3 to Download Bitmaps, Icons, and Fonts

TPDesign3 allows you to download bitmaps, icons, and fonts into your touch panel from an existing touch panel program. Touch Panel programs are created in the TPDesign3 software program. Refer to the *TPDesign3 Touch Panel Program* instruction manual for more information. Use the Download to Panel button to download a project file.

To download bitmaps, icons and/or fonts from an existing TPDesign3 project file:

1. Launch the TPDesign3 software program and open a project file that contains the desired bitmaps, icons, and fonts.

2. Select File from the menu bar to open the File menu.
3. In the File menu, click on Download to Panel; this opens the Download to Panel dialog box.
4. Click on the Comm Settings tab to set the communications port, baud rate, and other communication settings.
5. Then, click the Actions tab to set the communication mode and select which elements of the project file you want to download to the touch panel.
6. In the What To Send area, select one or more of the available options (All Bitmaps, All Icons, All Fonts).
7. Select the mode of communication with the touch panel (RS-232 and AXlink). Confirm that the correct panel is selected by verifying the ID values with the Base Address assigned to the touch panel in the Protected Setup page.
8. After clicking Connect, the Available Panels list appears in the Available Panels field. Click Begin to start downloading the project file into the panel.
9. After completing the download, the bitmaps, icons and fonts that were downloaded are now accessible via the BITMAPS, ICONS and FONTS menus.

Creating a Bargraph and Joystick

Bargraphs are level monitors and adjustable level controls. These levels can be configured to monitor and adjust audio outputs and lighting levels.

Joysticks are vertical and horizontal direction controllers you can use for camera for pan and tilt control. Before you start, make sure to connect the touch panel to your Controller; otherwise, the joystick will not work properly.

Adding a bargraph or joystick button

Create a new button using the ADD operation bar in the BUTTON menu.

1. Press BUTTON in the Edit bar to open the BUTTON menu.
2. Press PROPERTIES in the BUTTON menu to open the PROPERTIES operation bar.
3. Press any button to open the Button Properties page.
4. Press BUTTON TYPE to open the BUTTON TYPE menus. Choose a button type to open its Button Properties page.

Setting Bargraph and Joystick Properties

Use the Button Properties page to set channel, level, and button colors. Refer to the *Setting the variable text code* section on page 14 and the *Setting the channel code* section on page 14 for further information. Refer to the *Setting the button colors for channel-off conditions* section on page 15 for more information on colors for channel-off conditions.

Setting the level code

Level buttons set the device and number codes for the touch panels.



Joysticks actually use two level numbers. The first is for the X-axis and the second is for the Y-axis. You only need to specify the first level.

1. Press DEV to open a keypad and set the device number.
2. Enter 1, 2, 3, or 4 in the keypad. The programming software uses device codes 1 - 4 to identify the touch panel.
3. Press ENTER to save the level device number, close the keypad, and return to the Button Properties page.
4. Press NUM to open a keypad and set the level number assigned to the device.
5. Enter a number 1 – 8. Each device can have from 1 – 8 levels **except** joysticks, where the range is 1 – 7.
6. Press ENTER to save, close the keypad, and return to the Button Properties page.

Programming

You can program the touch panel to perform a wide variety of operations using Axxess Send_Commands and variable text commands. Use the commands described in this section to program the touch panel. Refer to the *Axxess Programming Language* instruction manual for complete information.

Serial Commands

Serial Commands are used in the AxxessX Terminal Emulator Mode. These commands are case insensitive.

Serial Commands	
?PAR Returns panel parameters to the PC terminal.	Panel parameters include: firmware version, device number, mouse type, output resolution, number of devices, cursor enable, brightness, and contrast. Syntax: " ?PAR " Example: " ?PAR " Requests the information.
CALIBRATE Starts touch panel calibration.	Syntax: " CALIBRATE " Example: " CALIBRATE " Starts the calibration sequence mode on the touch panel.
CHECK CAL Enters the calibration test mode.	Syntax: " CHECK CAL " Example: " CHECK CAL " Starts the calibration check mode on the touch panel.
ECHO ON Turns On character echo.	Syntax: " ECHO ON " Example: " ECHO ON " The character echo is sent back to the computer.
ECHO OFF Turns Off character echo.	Syntax: " ECHO OFF " Example: " ECHO OFF " The character echo is not sent back to the computer.
HELLO Verifies the serial communication is working properly.	Syntax: " HELLO " Example: " HELLO " If the communication is active and working, the response is "How are you doing?".

Serial Commands (Cont.)	
SETUP Goes to Setup Page.	Syntax: " SETUP " Example: " SETUP " Flips the touch panel to the Setup page.
VER Restores the current vision.	Syntax: " VER " Example: " VER " This returns the current version of the main firmware.
ZAP! Clears all memory and erase buttons, pages, drawings, and symbols.	Syntax: " ZAP! " Example: " ZAP! " Clears all memory and erases all buttons, pages, drawings, and symbols.

System Send_Commands

System Send_Commands are stored in the Controller and direct the touch panel to perform various operations.

System Send_Commands	
ABEEP Outputs one panel beep even if the beep value is set to 0 in the Setup page.	Syntax: " 'ABEEP' " Example: SEND_COMMAND TP, " 'ABEEP' " Beeps the panel.
ADBEEP Outputs a double beep even if the double beep value is set to 0 in the Setup page.	Syntax: " 'ADBEEP' " Example: SEND_COMMAND TP, " 'ADBEEP' " Double beeps the panel.
AKEYB Opens the touch panel keyboard and initializes the text string entry.	The keyboard string is set to null during power-up and is stored until power-down. Syntax: " 'AKEYB-<text string>' " Variables: text string = 0 - 59 characters Example: SEND_COMMAND TP, " 'AKEYB-TOUCH HERE' " Opens the touch panel keyboard with TOUCH HERE in the display.

System Send_Commands (Cont.)	
AKEYP Opens the touch panel keypad and initializes the number string entry.	The keyboard string is set to null during power-up and is stored until power-down for. Syntax: <code>" 'AKEYP-<number string>' "</code> Variables: number string = 0 - 9999 Example: <code>SEND_COMMAND TP, " 'AKEYP-1988' "</code> Opens the touch panel keypad with 1988 in the display.
AKEYR Closes/opens the touch panel keyboard/pad.	Syntax: <code>" 'AKEYR' "</code> Example: <code>SEND_COMMAND TP, " 'AKEYR' "</code> Closes the keyboard/keypad opened using the 'AKEYB', 'AKEYP', or 'PKEYP' commands.
BEEP Gives an output of one beep.	The Beep button in the Protected Setup page must be set from 1 - 10 for the BEEP command. Syntax: <code>" 'BEEP' "</code> Example: <code>" 'SEND_COMMAND TP, " 'BEEP' "</code> Beeps the panel if the Beep button is not set to 0.
BRIT Adjusts brightness of display.	Syntax: <code>" 'BRIT-<level>' "</code> Variables: level = 1 - 8 (1 = minimum; 5 = maximum) Example: <code>SEND_COMMAND TP, " 'BRIT-8' "</code> Sets to highest brightness level.
CALIBRATE Starts the touch panel calibration sequence.	Syntax: <code>" 'CALIBRATE' "</code> Example: <code>SEND_COMMAND TP, " 'CALIBRATE' "</code> Starts the calibration operation on the touch panel.
CLOCK Sets the time and date.	Syntax: <code>" 'CLOCK <mm-dd-yy> <hh:mm:ss>' "</code> Variables: mm = 01 - 12, dd = 01 - 31, yy = 00 - 99 hh = 00 - 23, mm = 00 - 59, ss = 00 - 59 Example: <code>SEND_COMMAND TP, " 'CLOCK 02-08-98 19:16:00' "</code> Sets the touch panel's date to February 8, 1998, and time to 7:16 p.m.

System Send_Commands (Cont.)	
DBEEP Gives a double beep output.	This command only works if the Double Beep value in the Protected Setup page is set to ON. Syntax: <code>" 'DBEEP' "</code> Example: <code>SEND_COMMAND TP, " 'DBEEP' "</code> Double beeps the panel.
ILEV Inverts the joystick axis.	Syntax: <code>" 'ILEV <joystick axis to invert>' "</code> Variables: joystick axis to invert = 0 = Normal G3 joystick (origin: top left) 1 = Invert horizontal axis (origin: top right) 2 = Invert vertical axis (origin: bottom left) 3 = Invert both axes (origin: bottom right) Example: <code>SEND_COMMAND TP, " 'ILEV 3' "</code> Inverts the joystick axis to move the origin to another corner.
PAGE Flips to page with specified page name.	Syntax: <code>" 'PAGE-<page name>' "</code> Variables: page name = 1 - 50 ASCII characters Example: <code>SEND_COMMAND TP, " 'PAGE-MAIN PAGE' "</code> Flips the touch panel to the page named MAIN PAGE.
PKEYP Displays asterisks (*) for keypad entries.	Syntax: <code>" 'PKEYP-<number string>' "</code> Variables: number string = 0 - 9999 Example: <code>SEND_COMMAND TP, " 'PKEYP-1988' "</code> Displays the touch panel keypad with **** instead of 1988.
PPOF Closes a specific popup page.	Syntax: <code>" 'PPOF-<page name>' "</code> Variables: page name = 1 - 50 ASCII characters Example: <code>SEND_COMMAND TP, " 'PPOF-Popup Page 1' "</code> Closes Popup Page 1.
PPON Opens a specific popup page.	Syntax: <code>" 'PPON-<page name>' "</code> Variables: page name = 1 - 50 ASCII characters Example: <code>SEND_COMMAND TP, " 'PPON-Popup Page 1' "</code> Opens Popup Page 1.

System Send_Commands (Cont.)	
QBEEP Stops all beeps.	Syntax: " 'QBEEP' " Example: SEND_COMMAND TP, " 'QBEEP' " Stops <i>all</i> beeps.
RESET Clears panel status (same as power up). Saved data is not cleared.	Syntax: " 'RESET' " Example: SEND_COMMAND TP, " 'RESET' " Resets the touch panel.
SETUP Goes to the Setup page.	Syntax: " 'SETUP' " Example: SEND_COMMAND TP, " 'SETUP' " Flips the touch panel to the Setup page.
SLEEP Forces the touch panel to screen saver mode.	Syntax: " 'SLEEP' " Example: SEND_COMMAND TP, " 'SLEEP' " Activates the screen saver mode.
TPAGEOFF Deactivates page tracking.	Syntax: " 'TPAGEOFF' " Example: SEND_COMMAND TP, " 'TPAGEOFF' " Deactivates the page tracking option.
WAKE Deactivates screen-saver mode and resets sleep timer.	Syntax: " 'WAKE' " Example: SEND_COMMAND TP, " 'WAKE' " Deactivates the touch panel screen-saver mode and resets the sleep timer.
XMTO Sets the new network communication delay for the panel and SOFTROM.	Syntax: " 'XMTO <number>' " Variables: number = 4 - 30 ASCII characters Example: SEND_COMMAND TP, " 'XMTO 5' " Sets the new delay time to 5 seconds.
XMRT Sets the new network communication retry value for the panel and SOFTROM.	Syntax: " 'XMRT <number>' " Variables: number = 1 - 15 ASCII characters Example: SEND_COMMAND TP, " 'XMRT 9' " Sets the number of retries to 9.

System Send_Commands (Cont.)	
TPAGEON Activates page tracking.	Syntax: <pre>" 'TPAGEON' "</pre> Example: <pre>SEND_COMMAND TP, 'TPAGEON' DEFINE_DEVICE TP1 = 128 (*AMX Touch Panel*) TP2 = 129 (*AMX Touch Panel*) DEFINE_VARIABLE TP1_BUFFER[100] (*Buffer for TP1*) TP2_BUFFER[100] (*Buffer for TP2*) TRASH[50] (*For Parsing Above*) DEFINE_START CREATE_BUFFER TP1, TP1_BUFFER CREATE_BUFFER TP2, TP2_BUFFER SEND_COMMAND TP1, 'TPAGEON' SEND_COMMAND TP2, 'TPAGEON' DEFINE_PROGRAM (***** PAGE TRACKING ROUTINE *****) IF (LENGTH_STRING (TP1_BUFFER)) { IF (FIND_STRING (TP1_BUFFER, 'PAGE-', 1)) { TRASH=REMOVE_STRING (TP1_BUFFER, 'PAGE-', 1) SEND_COMMAND TP2, " 'PAGE-', TP1_BUFFER" CLEAR_BUFFER TP1_BUFFER } IF ((FIND_STRING (TP1_BUFFER, 'PPON-', 1))) OR (FIND_STRING (TP1_BUFFER, ('PPOF-', 1))) { SEND_COMMAND TP2, TP1_BUFFER CLEAR_BUFFER TP1_BUFFER } } IF (LENGTH_STRING (TP2_BUFFER)) { IF (FIND_STRING (TP2_BUFFER, 'PAGE-', 1)) { TRASH=REMOVE_STRING (TP2_BUFFER, 'PAGE-', 1) SEND_COMMAND TP1, " 'PAGE-', TP2_BUFFER" CLEAR_BUFFER TP2_BUFFER } IF ((FIND_STRING (TP1_BUFFER, 'PPON-', 1))) OR (FIND_STRING (TP1_BUFFER, ('PPOF-', 1))) { SEND_COMMAND TP1, TP2_BUFFER CLEAR_BUFFER TP2_BUFFER } } } (***** In this program, the command string is sent to the Controller in the 'PAGE-(page name)' or 'PPON/PPOF-(page name)' format. The string can be captured in the buffer for one panel and sent to the other panel. If panels are combined using the DEFINE_COMBINE statement, the routine needs to be written only once, and the command is sent back to the same panel. ***** (*****END OF PAGE TRACKING ROUTINE*****)</pre>

System Send_Commands (Cont.)

ZAP! Clears all memory; erases buttons, pages, drawings, and symbols.	Syntax: " ' ZAP! ' " Example: SEND_COMMAND TP, " ' ZAP! ' " Clears all memory and erases all buttons, pages, drawings, and symbols.
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Only use the ZAP! command to erase all the saved data in the touch panel; data cannot be recovered after it is erased.

Video Send_Commands

Video Send_Commands direct the touch panel to perform various video specific operations.

Video Send_Commands

@VBR Sets the video signal brightness.	Syntax: " ' @VBR<data> ' " Variables: data = 0 (min) - 255 (max) Example: SEND_COMMAND TP, " ' @VBR 128 ' " Sets the video brightness to 128.
@VCT Sets the video signal contrast.	Syntax: " ' @VCT<data> ' " Variables: data = 0 (min) - 255 (max) Example: SEND_COMMAND TP, " ' @VCT 128 ' " Sets the video contrast to 128.
@VDD Sets the auto-detection or manual setting of the video standard.	Syntax: " ' @VDD<mode> ' " Variables: mode = 1 = Auto-detect video input 2 = Manual set NTSC 3 = Manual set PAL 4 = Manual set SECAM Example: SEND_COMMAND TP, " ' @VDD 3 ' " Sets the panel to only display the PAL video format.
@VHU Sets the video signal hue.	Syntax: " ' @VHU<data> ' " Variables: data = 0 (min) - 255 (max) Example: SEND_COMMAND TP, " ' @VHU 128 ' " Sets the video hue to a value of 128.

Video Send_Commands (Cont.)	
@VSD Sets the video default settings (brightness, contrast, saturation, hue).	Syntax: " '@VSD' " Variables: data = 0 (min) - 255 (max) Example: SEND_COMMAND TP, " '@VSD' " Sets the incoming video values to their default settings.
@VST Sets the video signal saturation.	Syntax: " '@VST<data>' " Variables: data = 0 (min) - 255 (max) Example: SEND_COMMAND TP, " '@VST 128' " Sets the video saturation to 128.

Programming Numbers

The following information provides the programming numbers for colors, fonts, and borders

- Colors can be used to set the colors on buttons, sliders, gauges, and pages. The lowest color number represents the lightest color-specific display; the highest number represents the darkest display. For example, 0 represents light red, and 5 is dark red.

Colors and Programming Numbers			
Color	No.	Color	No.
Red	0 - 5	Purple	54 - 59
Orange	6 - 11	Magenta	60 - 65
Yellow	12 - 17	Pink	66 - 71
Lime	18 - 23	White	72 - 77
Green	24 - 29	Light Gray	78 - 83
Aqua	30 - 35	Dark Gray	84 - 86
Cyan	36 - 41	Black	87
Royal	42 - 47	Transparent	255
Blue	48 - 53		

- Font styles can be used to program the text fonts on buttons, sliders, gauges, and pages. The programming numbers are assigned consecutively when they are downloaded to the touch panel.

Font Styles and Programming Numbers			
No.	Font styles	No.	Font styles
1	Extra small	5	Extra large
2	Small	6	Hollow medium
3	Medium	8	Hollow extra large
4	Large	32 - 255	Variable fonts



You must import variable text fonts into a TPDesign3 project file, and download the project file containing the fonts to the touch panel. The variable fonts are programming numbers assigned by the touch panel during the download process.

- Border styles can be used to program borders on buttons, sliders, and gauges.

Border Styles and Programming Numbers			
No.	Border styles	No.	Border styles
0	No border	11	Double shadow
1	No border special	20	3-dimensional rectangle 1
2	Single line	21	3-dimensional rectangle 2
3	Double line	22	3-dimensional round 1
4	Triple line	23	3-dimensional round 2
5	Single rounded	24	3-dimensional neon 1
6	Double rounded	25	3-dimensional neon 2
7	Single raised	26	3-dimensional neon blue
8	Double raised	27	3-dimensional neon green
9	Triple raised	40	Single diamond
10	Double-line two single	41	Double diamond

Shorthand Send_Commands

The table below lists the shorthand Send_Commands you can use with touch panels. The shorthand command data is 1-byte, non-ASCII format except for pages, passwords, text, and bitmap names.

Shorthand Send_Commands	
@CBF Sets the OFF feedback border color to the specified color.	This works only if the specified background color is not the same as the current color. Syntax: " '@CBF', <variable text address>, <color_number> " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " '@CBF', 1, 0 " Sets the OFF feedback border color to Red for the variable text button 1.
@CBN Sets the ON feedback border color to the specified color.	This works only if the specified background color is not the same as the current color. Syntax: " '@CBN', <variable text address>, <color_number> " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " '@CBN', 2, 78 " Sets the ON feedback border color to Gray for variable text button 2.

Shorthand Send Commands (Cont.)	
@CFF Sets the OFF feedback fill color to the specified color.	<i>This only works if the specified background color is not the same as the current color.</i> Syntax: " '@CFF', <variable text address>, <color_number> " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " '@CFF', 1, 72 " Sets the OFF feedback fill color to White for variable text button 1.
@CFN Sets the ON feedback fill color to the specified color.	<i>This only works if the specified background color is not the same as the current color.</i> Syntax: " '@CFN', <variable text address>, <color_number> " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " '@CFN', 1, 30 " Sets the ON feedback fill color to Aqua for variable text button 1.
@CPG Sets the page with specified page name background color to the specified color.	<i>This only works if the new background color is not the same as the current color.</i> Syntax: " '@CPG', <color_number>, '<page name>' " Variables: color number = See the Colors and Programming Numbers table on page 26. page name = 1 – 50 ASCII characters Example: SEND_COMMAND TP, " '@CPG', 87, 'Main Page' " Sets the page title to Main Page, and the color to Black.
@CPP Sets the page with specified page name background color to the specified color.	<i>This only works if the specified background color is not the same as the current color.</i> Syntax: " '@CPP', <color_number>, '<pop-up page name>' " Variables: color number = See the Colors and Programming Numbers table on page 26. pop-up page name = 1 – 50 ASCII characters Example: SEND_COMMAND TP, " '@CPP', 54, 'Audio Page' " Sets the popup page title to Audio Page, and the color to Purple.
@CTF Sets the OFF feedback text color to the specified color.	<i>This only works if the specified background color is not the same as the current color.</i> Syntax: " '@CTF', <variable text address>, <color_number> " Variables: variable text address = 1 – 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " '@CTF', 1, 48 " Sets the OFF feedback text color to Blue for variable text button 1.

Shorthand Send Commands (Cont.)	
@CTN Sets the ON feedback text color to the specified color.	<i>This only works if the specified background color is not the same as the current color.</i> Syntax: " '@CTN', <variable text address>, <color_number> " Variables: variable text address = 1 – 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " '@CTN', 1, 72 " Sets the ON feedback text color to White for variable text button 1.
@IDF The touch panel returns its MS-DOS file name in a string.	Syntax: " '@IDF' " Example: SEND_COMMAND TP, " '@IDF' " The touch panel returns its MS-DOS file name in a string.
@IDP Queries the touch panel to return a string with the TPDesign3 project name.	Syntax: " '@IDP' " Example: SEND_COMMAND TP, " '@IDP' " The touch panel returns a string that contains its TPDesign3 project name.
@PPA Removes all popup pages from a specified page.	If no page is specified, the active page is used. Syntax: " '@PPA-<page name>' " Example: SEND_COMMAND TP, " '@PPA-Main Page' " If there were several popup pages on 'Main Page' that are active, sending the previous command would remove them all from 'Main Page'.
@PPF Deactivates a popup page on a touch panel page.	If a page name is empty the current page is used. If a pop-up page is part of a group, the whole group is deactivated. Syntax: " '@PPF-<popup page name>; <page name>' " Variables: popup page name = target popup page name page name = target touch panel page name Example: SEND_COMMAND TP, " 'PPF-Laser Disc 2 Transport Control; Laser Disc Control Page' " Deactivates the Laser Disc 2 Transport Control popup page on the Laser Disc Control Page.

Shorthand Send Commands (Cont.)	
@PPK Deactivates a popup page on <i>all</i> touch panel pages.	If a pop-up page is part of a group, the whole group is deactivated. Syntax: " '@PPK-<popup page name>' " Variables: popup page name = target popup page name page name = target touch panel page name Example: SEND_COMMAND TP, " '@PPK-Laser Disc 2 Transport Control' " Deactivates the Laser Disc 2 Transport Control popup page on <i>all</i> touch panel pages.
@PPN Activates a popup page on a touch panel page.	If a page name is empty the current page is used. Syntax: " '@PPN-<popup page name>;<page name>' " Variables: popup page name = Popup page name page name = Page name Example: SEND_COMMAND TP, " '@PPN-Laser Disc 2 Transport Control; Laser Disc Control Page' " Activates the Laser Disc 2 Transport Control popup page on the Laser Disc Control Page.
@PPX Removes all panel popup pages.	Syntax: " '@PPX-<popup page>' " Example: SEND_COMMAND TP, " '@PPX-POP VCR2' " The popup page 'POP VCR2' must be in a popup group. If so, then any popup page in that group will be turned Off on all pages.
@PWD Sets the password for the Page Flip on the touch panel.	Syntax: " '@PWD-<page flip password>' " Variables: page flip password = 0 - 9999 Example: SEND_COMMAND TP, " '@PWD-1988' " Sets the page flip password to 1988.
@RDW Redraws the current screen.	Syntax: " '@RDW' " Example: SEND_COMMAND TP, " '@RDW' " Sends a message to the touch panel to redraw the screen.
@SSL Changes the Sleep string sent to the Controller when the touch panel activates sleep mode.	Syntax: " '@SSL-<string>' " Variables: string = alphanumeric characters Example: SEND_COMMAND TP, " '@SSL-Touch Panel Deactivated' " Sends Touch Panel Deactivated to the Controller.

Shorthand Send_Commands (Cont.)	
@SST Changes the Start-up string sent to the Central Controller when the touch panel powers up.	Syntax: <pre>" '@SST-<string>' "</pre> Variables: string = alphanumeric characters Example: <pre>SEND_COMMAND TP, "'@SST-Touch Panel Power On' "</pre> Sends touch panel Power On to the Central Controller when the touch panel powers up.
@SWK Changes the wake-up string sent to the Controller when the touch panel is activated.	Syntax: <pre>" '@SWK-<string>' "</pre> Variables: string = alphanumeric characters Example: <pre>SEND_COMMAND TP, "'@SWK-Touch Panel Activated' "</pre> Sends Touch Panel Activated to the Central Controller.

Color Send_Commands

Use the color Send_Commands to set the colors for text, buttons, and pages. Use the same command for setting gray scale values only change the color number value to reflect the gray scale (72-86) value.

Color Send_Commands	
CALL Sets the colors for a variable text button.	You must use the variable text assignments to change button colors (see the Colors and Programming Numbers table on page 26). Syntax: <pre>" 'CALL<variable text address>-<data>' "</pre> Variables: You must have the variable text assignments to change button colors. variable text address = 1 - 255 data = 6 color number series for: FILL COLOR ON FILL COLOR OFF BORDER COLOR ON BORDER COLOR OFF TEXT COLOR ON TEXT COLOR OFF Example: <pre>SEND_COMMAND TP, "'CALL1-1 3 0 0 72 74' "</pre> Sets variable text button 1 to: FILL COLOR ON = Red (one shade from brightest) FILL COLOR OFF = Red (three shades from brightest) BORDER COLOR ON = Red (brightest) BORDER COLOR OFF = Red (brightest) TEXT COLOR ON = White (brightest) TEXT COLOR OFF = White (two shades from brightest)

Color Send Commands (Cont.)	
CBOFF Sets the OFF feedback border color to the specified color.	Syntax: " 'CBOFF<variable text address>-<color_number>' " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " 'CBOFF1-72' " Sets the OFF feedback border color to White for the variable text button 1.
CBON Sets the ON feedback border color to the specified color.	Syntax: " 'CBON<variable text address>-<color _number>' " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " 'CBON1-87' " Sets the ON feedback border color to Black for variable text button 1.
CFOFF Sets the OFF feedback fill color to the specified color.	Syntax: " 'CFOFF<variable text address>-<color_number>' " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " 'CFOFF1-72' " Sets the OFF feedback fill color to White for variable text button 1.
CFON Sets the ON feedback fill color to the specified color.	Syntax: " 'CFON<variable text address>-<color _number>' " Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: SEND_COMMAND TP, " 'CFON1-87' " Sets the ON feedback fill color to Black for variable text button 1.
CPAGE Sets the background page color to the specified color.	Syntax: " 'CPAGE<color_number>-<page name>' " Variables: color number = See the Colors and Programming Numbers table on page 26. page name = 1 - 50 ASCII characters (<i>Page names are case sensitive.</i>) Example: SEND_COMMAND TP, " 'CPAGE255-MAIN PAGE' " Sets the background color on the MAIN PAGE to Transparent.

Color Send_Commands (Cont.)	
CTOFF Sets the OFF feedback text color to the specified color.	Syntax: <pre>"'CTOFF<variable text address>-<color _number>' "</pre> Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: <pre>SEND_COMMAND TP, "'CTOFF1-87' "</pre> Sets the OFF feedback text color to Black for variable text button 1.
CTON Sets the ON feedback text color to the specified color.	Syntax: <pre>"'CTON<variable text address>-<color _number>' "</pre> Variables: variable text address = 1 - 255 color number = See the Colors and Programming Numbers table on page 26. Example: <pre>SEND_COMMAND TP, "'CTON1-72' "</pre> Sets the ON feedback text color to White for variable text button 1.

Variable Text Send_Commands

Use variable text Send_Commands to set the borders, fonts, and text.

Variable Text Send_Commands	
!B Sets a specific button to On or Off.	Syntax: <pre>"'!B',<variable text address 1-255>,<ON/OFF 0-1> "</pre> Variables: variable text address = 1 - 255 ON = 0 OFF = 1 Example: <pre>SEND_COMMAND TP, "'!B',128, 1"</pre> Sets button 128 Off.
BTOF Sets a specific button's active state to Off.	Syntax: <pre>"'BTOF',<variable text address> "</pre> Variables: variable text address = 1 - 255 Example: <pre>SEND_COMMAND TP, "'BTOF',255 "</pre> Sets the state for button 255 to Off.
BTON Sets a specific button's active state to On.	Syntax: <pre>"'BTON',<variable text address>' "</pre> Variables: variable text address = 1 - 255 Example: <pre>SEND_COMMAND TP, "'BTON',128 "</pre> Sets the state for button 128 to On.

Variable Text Send_Commands (Cont.)	
!C Sets the border, font, and text in one command.	Syntax: <pre>" '!C', <variable text address>, <border style>, , '<new button text>' "</pre> Variables: variable text address = 1 - 255 border style = See the Border Styles and Programming Numbers table on page 27. font size = See the Font Styles and Programming Numbers table on page 26. button text = Enter button text to appear on button. Example: <pre>SEND_COMMAND TP, " '!C', 1, 6, 6, 'VCR PLAY' "</pre> Sets the variable text button one title to VCR PLAY using a hollow medium font, and changes the border attribute to double rounded.
!F Shorthand version of 'FONT' command.	Syntax: <pre>" '!F', <variable text address>, '' "</pre> Variables: variable text address = 1 - 255 font size = See the Font Styles and Programming Numbers table on page 26. Example: <pre>SEND_COMMAND TP, " '!F', 1, 6 "</pre> Changes variable text button one font to hollow medium.
FONT Changes the font size (or style) of the text in a specific button.	Syntax: <pre>" 'FONT, <variable text address>--' "</pre> Variables: variable text address = 1 - 255 font size = See the Font Styles and Programming Numbers table on page 26. Example: <pre>SEND_COMMAND TP, " 'FONT, 1-6' "</pre> Changes variable text button one font to hollow medium.
!! Shorthand version of 'ICON' command.	Syntax: <pre>" '!I', <variable text address>, '<border style>' "</pre> Variables: variable text address = 1 - 255 border style = See the Border Styles and Programming Numbers table on page 27. Example: <pre>SEND_COMMAND TP, " '!I', 1, '6' "</pre> Changes the variable text button one border style to double rounded.
ICON Changes the border style of a specific button.	Syntax: <pre>" 'ICON, <variable text address>--<border style>' "</pre> Variables: variable text address = 1 - 255 border style = See the Border Styles and Programming Numbers table on page 27. Example: <pre>SEND_COMMAND TP, " 'ICON, 25-6' "</pre> Changes the variable text button 25 border style to double-rounded.

Variable Text Send_Commands (Cont.)	
!T Shorthand version of 'TEXT' command.	Syntax: <pre>" '!T', <variable text address>, '<new button text>' "</pre> Variables: variable text address = 1 - 255 new button text = 1 - 60 characters Example: <pre>SEND_COMMAND TP, " '!T', 1, 'VCR PLAY' "</pre> Changes the variable text button one title to VCR PLAY.
TEXT Enters text on a button.	Use the character to display text on multiple lines. Syntax: <pre>" 'TEXT, <variable text address> - <new button text>' "</pre> Variables: variable text address = 1 - 255 button text = Enter button text to appear on button Example: <pre>SEND_COMMAND TP, " 'TEXT2-VCR PLAY' "</pre> Sets the VCR and PLAY text on variable button 2. The character places VCR above PLAY on the button.

Shorthand Variable Text Commands

The table below lists the shorthand variable text commands you can use with the touch panel. The shorthand command data is one-byte, non-ASCII format except for pages, passwords, text, and bitmap names.

Shorthand Variable Text Commands	
@BMP Adds a bitmap file to a button.	Bitmap files are imported into TPDesign3; the numbers are assigned by the touch panel during the download process. Syntax: <pre>" '@BMP', <variable text address>, '<bitmap>' "</pre> Variables: variable text address = 1 - 255 bitmap = Bitmap Example: <pre>SEND_COMMAND TP, " '@BMP', 85, 'Bitmap1' "</pre> Adds the Bitmap1 file to button 85.
@BOR Sets the border style on a button.	Syntax: <pre>" '@BOR', <variable text address>, <border style> "</pre> Variables: variable text address = 1 - 255 border style = See the Border Styles and Programming Numbers table on page 27. Example: <pre>SEND_COMMAND TP, " '@BOR', 65, 11 "</pre> Sets the border style to Double shadow on button 65.

Shorthand Variable Text Commands (Cont.)

@BMF

Sets multiple attributes to a button, slider, or gauge.

This command allows you to program up to 12 attributes on one command line.

Syntax:

```
" '@BMF', <variable text address>, '<attribute data>' "
```

Variables:

variable text address = 1 - 255

attribute data:

'%R' <left>, <top>, <right>, <bottom>' = Sets the rectangle position.

'%B', <border styles> = See the Border Styles and Programming Numbers table on page 27.

'%F', = See the Font Styles and Programming Numbers table on page 26.

'%T', <button text > = ASCII characters (empty is clear)

'%P', <bitmap> = Bitmap filename (empty is clear)

'%I', <icon> = 1 - 255 (icon numbers are assigned in TPDesign3 project file)

'%J', <text alignment> = 1 - 9 as shown the following alignment chart

1	2	3
4	5	6
7	8	9

For %C1-%C6, see the Colors and Programming Numbers table on page 26.

'%C1', <on-state fill color>

'%C2', <off-state fill color>

'%C3', <on-state border color>

'%C4', <off-state border color>

'%C5', <on-state text color>

'%C6', <off-state text color>

Example:

```
SEND_COMMAND TP, " '@BMF', 255, '%T POWER | ON'
'%B', '4', '%C1', '72' "
```

Sets the text on button 255 to POWER ON (appears on two lines), adds a triple-line border, and sets the On-state color to White.

@ENA

Enables/disables buttons based on the variable text channel.

Syntax:

```
" '@ENA', <variable text address>, <disable button on/off> "
```

Variables:

variable text address = 1 - 255

disable button on/off=

1 : button disabled

0 : button enabled

Example:

```
SEND_COMMAND TP, " '@ENA', 128, 1 "
```

Disables the button with variable text channel 128. This button will stop responding to pushes completely, until it is sent an Enable command. Nothing short of a touch panel SoftROM firmware reload will re-enable the button. Reloading the touch panel file, reloading the Axxess program, or resetting power on the panel or master will not re-enable the button. It must be sent an Enable command once it has been disabled.

Shorthand Variable Text Commands (Cont.)

@FON

Sets the text font on a button.

Syntax:
" '@FON', <variable text address>, "
Variables:
variable text address = 1 - 255
font style = See the Font Styles and Programming Numbers table on page 26.
Example:
SEND_COMMAND TP, " '@FON', 56, 32"
Sets the text on button 56 to variable font style 32.

@ICO

Assigns an icon to a button.

Syntax:
" '@ICO', <variable text address>, <icon>"
Variables:
variable text address = 1 - 255
icon file number = 1 - 255
Example:
SEND_COMMAND TP, " '@ICO', 16, 12"
Adds icon 12 on button 16.

@JUS

Sets the text alignment on a button.

Syntax:
" '@JUS', <variable text address>, <text alignment>"
Variables:
variable text address = 1 - 255
text alignment = 1 - 9 as shown in the following alignment chart

1	2	3
4	5	6
7	8	9

Example:
SEND_COMMAND TP, " '@JUS', 9, 5"
Centers the text on button 9.

@SHO

Sets a specific button to on or off.

Syntax:
" '@SHO', <variable text address>, <button on/off>"
Variables:
variable text address = 1 - 255
button on/off:
0 = button Off
1 = button On
Example:
SEND_COMMAND TP, " '@SHO', 128, 0"
Sets button 128 off.

Shorthand Variable Text Commands (Cont.)	
@TXT Adds text to a button.	Use the character to display text on multiple lines. Syntax: <pre>" '@TXT', <variable text address>, '<text>' "</pre> Variables: variable text address = 1 - 255 button text = Enter button text to appear on button. Example: <pre>SEND_COMMAND TP, " '@TXT', 2, 'VCR PLAY' "</pre> Sets the VCR and PLAY text on variable button 2. The character places VCR above PLAY on the button.
@UNI Adds Unicode text on a button.	Characters for Middle Eastern languages, such as Arabic, are not supported within the Unicode fonts because they are bi-directional. Buttons with Unicode fonts can only be created and edited using TPDesign3 Touch Panel Design Program. Syntax: <pre>" '@UNI', <variable text address>, '<text>' "</pre> Variables: variable text address = 1 - 255 text = Enter button text here Example: <pre>" '@UNI', 2, ' (Foreign Text) ' "</pre> Sets the Foreign Text on variable button 2.

Button String Commands

The table below lists string commands you can assign to buttons using the touch panel editor. Select the PROPERTIES option in the Edit bar, press the target button, and enter the string command with the Touch Panel keyboard. The string command is sent to the control system when you press the button.

Button String Commands	
\$SL Activates sleep mode on the touch panel.	Syntax: <pre>" '\$SL' "</pre> Example: <pre>" '\$SL' "</pre> Activates sleep mode on the touch panel.
\$ST Sets the idle time to activate sleep mode for a touch panel in 1-minute increments.	When the touch panel's input time matches the sleep time, the panel goes to sleep. Syntax: <pre>" '\$ST <sleep timeout>' "</pre> Variables: sleep timeout = 1 (Off) - 120 (minutes) Example: <pre>" '\$ST 5' "</pre> Sets the touch panel's sleep time to 5 minutes.

Upgrading the Firmware

Your PC must be connected to the PROGRAM DB-9 connector on the Central Controller using a Programming Cable in order to upgrade the firmware in the panel. Verify the connection of an AXlink connector cable from the Controller to the unit (using the mini-XLR).

If power is lost during the download process, the unit powers up with the same set of code it had prior to the download. There is a small window during which a loss of power can be catastrophic. If power is lost between the erase of flash memory and the completion of copying the new boot code from RAM to flash memory, the unit will not operate at all when power returns.

If you have not already installed the SOFTROM program, do so by following the steps contained on the AMX Control Disc.

Configuration

To configure the communication setting for the SOFTROM program:

1. Press F1, the Configuration screen appears.
2. Using the up/down arrow keys, select the communications port you are using to interface with the controller and press ENTER.
3. Using the right arrow key, move to the BAUD RATE column. Then, use the up/down arrow keys to select the interface communications speed and press ENTER. Be sure the BAUD RATE selections match the setting on the Controller.
4. Press F10 to save the communication settings and to exit the CONFIGURE screen.

Downloading the Firmware

To download the firmware:

1. Press F5 to acquire the list of online programmable devices. You can also press F2 to select all Online programmable devices and F3 to clear all devices.
2. Using the up/down arrow keys, select your firmware versions listed in the Firmware column of the screen, and press ENTER.
3. Using the Tab key, switch to the ONLINE MASTERS list.
4. Using the up/down arrow keys, select the device to be programmed.
5. Press ENTER for each device as it is selected
6. Press F4 to program the selected device; a loading message appears.
7. Press F5 to refresh the screen. Verify that the selected device has the correct firmware version. If any devices still appear with an old firmware version, repeat steps 3 - 5 until it appears with the correct version.



Firmware can be downloaded to multiple device numbers automatically. If multiple devices are selected, the bottom half of the loading bar indicates the percentage complete for the selected devices.

8. Press F10 to exit the SOFTROM program.



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3000 research drive, richardson, TX 75082 USA • 469.624.8000 • 800.222.0193 • fax 469.624.7153 • technical support 800.932.6993

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